



PTH Series

Professional Power Amplifiers

- PTH 3 2 x 300 W
- PTH 5 2 x 500 W
- PTH 7 2 x 700 W
- PTH 9 2 x 900 W

User manual

Bedienungsanleitung

Explanation of graphical symbols



This symbol is intended to alert the user of presence of uninsulated dangerous voltage within the products enclosure that may be of sufficient magnitude to constitute risk of electric shock to persons.



This symbol is intended to alert the user of presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance

CAUTION: To reduce the risk of electric shock, do not remove covers. No user serviceable parts inside. For servicing, refer to qualified personnel.



WARNING: To prevent fire or electric shock, do not expose this appliance to rain or moisture.

Explication des symboles graphiques



Ce symbole doit alerter l'utilisateur du danger provenant d'un voltage dangereux et non protégé à l'intérieur de l'appareil, voltage suffisamment fort pour représenter en réel danger d'électrocution.



Ce symbole doit attirer l'attention de l'utilisateur sur les instructions importantes qui concernent le service et la maintenance et qui accompagnent tout appareil.

ATTENTION: Pour éviter les risques de choc électrique, ne pas enlever le couvercle. L'appareille ne contient aucun pièce pouvant être réparée par l'utilisateur. Confiez la maintenance à un technicien qualifié.



AVERTISSEMENT: Pour éviter les risques de choc électrique ou d'incendie, n'exposez jamais cet appareil à l'humidité excessive ou à la pluie.

Erklärung der bildsymbole



Dieses Symbol warnt den Benutzer vor nicht-isolierter gefährlicher Spannung im inneren des Gerätes. Diese Spannung ist hoch genug, um Personen durch elektrischen schlag zu gefährden.



Dieses Symbol weist den Benutzer auf wichtige bedienungs- und Wartungsanweisungen hin, die in dieser Bedienungsanleitung aufgeführt sind.

ACHTUNG: Um Gefährdung durch elektrischen Schlag zu vermeiden, darf das Gehäuse nicht geöffnet werden. Es befinden sich keine Benutzer reparierbaren teile im inneren des Gerätes. Überlassen Sie jegliche Reparatur einem qualifizierten Fachmann.



WARNUNG: Um die Gefahr eines Brandes bzw. eine Verletzung durch elektrischen Schlag zu vermeiden, Sollte das Gerät niemals Regen oder Feuchtigkeit ausgesetzt werden.

Explicación de símbolos



Este símbolo indica la presencia de voltaje peligro no aislado dentro del aparato. Estas voltaje son lo suficientemente altas como para constituir un riesgo de descarga eléctrica para el usuario.



Este símbolo indica al usuario de la presencia de instrucciones importantes de funcionamiento y mantenimiento en la Manual de funcionamiento.

PRECAUCIÓN: Para reducir el riesgo de descarga eléctrica, no quite la tapa. El usuario no debe ajustar los componentes internos. En caso de avería, solicite la ayuda de personal técnico cualificado



AVISO: Para evitar el peligro de incendio o descarga eléctrica, no exponga este equipo a la lluvia o humedad.

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Safety Instructions

1. **Read Instructions** - All safety and operation instructions should be read before this unit is operated.
2. **Keep instructions** - The operating instructions should be retained to serve for future reference.
3. **Observe Warnings** - All warnings on the appliance and in this operation manual should be strictly followed.
4. **Water and Moisture** - This unit should not be used near water - for example, near bathtub, washbowl, kitchen sink, laundry tub, in a wet basement or near a swimming pool, etc.
5. **Heat** - This unit should be placed away from heat sources, such as radiators or other devices which produce heat.
6. **Power cord protection** - The power supply cords should be routed so that it is not likely to be stepped on or pinched by objects placed on or against them.
7. **Non-use periods** - The power cord of the unit should be unplugged from the outlet when the unit is not used for a longer period.
8. **Object and liquid entry** - Care should be taken so that objects do not fall and liquids are not spilled into the inside of the unit.
9. **Damage requiring service** - Unplug the unit and refer servicing to qualified service personnel under the following conditions:
 - * Objects have fallen, or liquid has spilled into the unit; or
 - * The unit has been exposed to rain; or
 - * The unit does not appear to operate normally or exhibits a marked change in performance; or
 - * The unit has been dropped, or its chassis damaged; or
 - * When the power cord or plug is damaged.
10. **Servicing** - The user should not attempt to service the unit beyond those means described in this operating manual. All other servicing should be referred to qualified personnel.
11. **To prevent electric shock** - Do not use the polarised plug with an extension cord, receptacle or other outlet unless the prongs can be fully inserted to prevent contact exposure.
12. **Grounding or polarisation** - Precautions should be taken so that the grounding or polarisation means of the unit is not defeated.
13. **Internal voltage selector and fuse** - The internal line voltage selector and the appropriate fuse should only be reset and reequipped for alternate voltage by a qualified service technician. For more information, contact your authorised dealer.
14. **Ventilation** - Slots and openings in the unit are provided for ventilation, to ensure reliable operation and to prevent overheating of the unit. These openings should not be blocked or covered!

PTH Series
Professional Power amplifiers

1. Introduction

1.1 General notes

'PT' stands for Power Transfer, which expresses exactly what the PT series power amplifiers do: they 'transfer' a few milliwatts of electrical signal power at the inputs into a couple of hundred watts at the speakers outputs, without changing the shape of the signal and adding as little noise or other spurious signals as possible. We put this signal transfer under the command of one of the most technically advanced control systems, including NLR (Non-Linearity Restoration) and TCL (Temperature Control by Limiting). The 'H' in 'PTH' indicates that this is the 'Heavy' version of PT. It is build with a conventional power supply which includes a toroidal transformer, responsible for the extra weight.

1.2 Features of the PTH series amplifiers

All PTH series power amplifiers are equipped with:

High efficiency 'flow through' cooling system with 2 proportional to temperature controlled fans and a large surface hybrid heatsink.

LED indicators for ready/protect, signal, NLR (distortion limiter) and TCL (Temperature Controlled Limiter).

Electronically balanced inputs, equipped with Neutrik Combo sockets and parallel XLR outputs for easy setup of multiple amplifier systems.

Oversized, non-compromise power supply with low-flux, magnetically screened toroidal transformer.

3 Speakon output connectors for stereo and bridge mode.

Soft-start anti surge circuitry for maximum fuse protection at startup.

Heavy duty relay in the output stage for speaker DC protection.

High efficiency class H output stage for lowest possible internal power dissipation on PTH 5, 7 and 9.

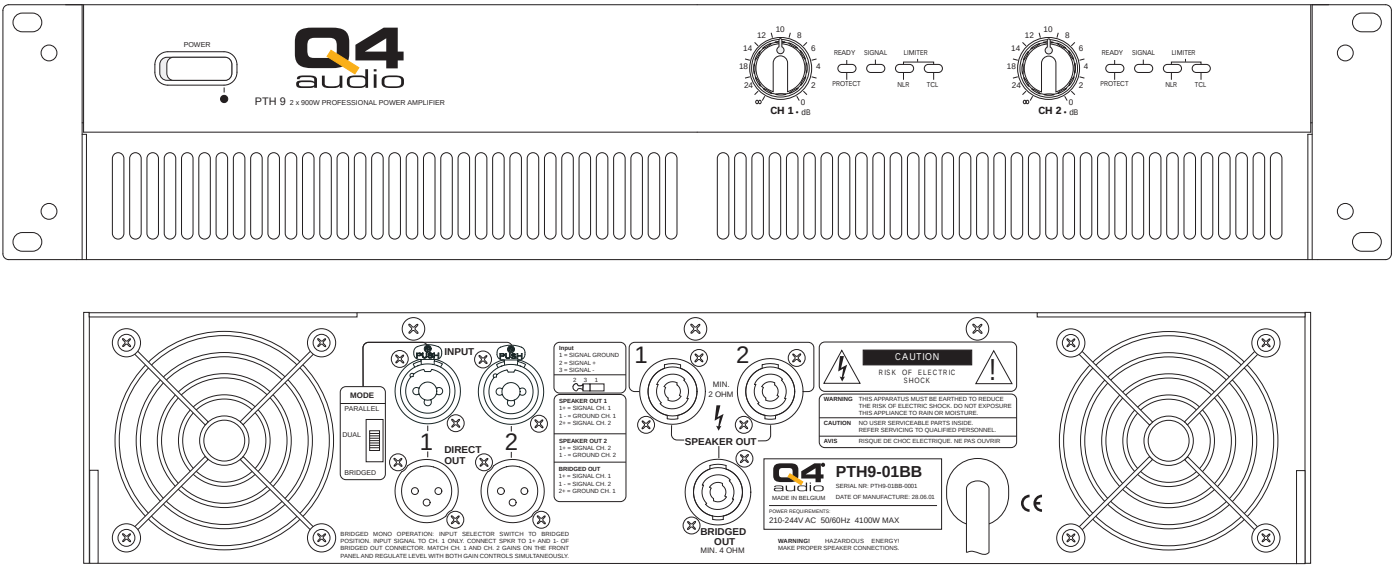
Protection circuitry against clipping, over temperature, mismatched loads, open/short outputs and DC voltage at output.

Current feedback input stage with ultra-fast internal-loop slew rate.

1.3 PTH series models

PTH series amplifiers are available in 4 models:

Model	Rated output power per channel	
	into 4 Ohms	into 8 Ohms
PTH 3	330 W	220 W
PTH 5	540 W	330 W
PTH 7	720 W	450 W
PTH 9	920 W	600 W



2. Setting up the amplifier

2.1 Installation

PTH series amplifiers are equipped with two cooling fans with rear to front airflow. When installing the amplifier, allow for ample space behind the amplifier to ensure sufficient airflow, especially when the amplifier is operated inside a rack system. This enables the amplifier to get rid of its heat and avoids limiting or shut-off by the thermal protection circuit.

2.2 Mode switch

Before making any connections, you have to decide in which mode you want to use your PTH amplifier. All PTH series amplifiers are able to work in three operational modes which can be selected by the mode switch (1) on the back panel.

DUAL mode: in this mode both channels and their corresponding in- and outputs work totally independent from each other. This is the mode for normal stereo (two-channel) operation.

PARALLEL (MONO) mode: in this mode, both inputs of the PTH amplifier are internally connected in parallel. Using the input 1 gives identical signals on both SPEAKER OUT 1 and 2 outputs (4 + 5) with the possibility of individual volume control.

Warning: this mode does not mean that the outputs of both channels can be wired in parallel. Never attempt to wire them together! This will damage the amplifier.

BRIDGE mode: mono bridge mode allows to use the amplifiers full output capacity for one single monaural channel. (See Chapter 5 for details).

This configuration is recommended to produce high power for a monaural speaker system, e.g. Bass

subwoofers. In addition to that, any PTH amplifier working in BRIDGE mode can be directly connected to an unisolated 100V-line (70V-line) constant voltage sound system.

2.3 Connections

All input and output sockets are on the rear panel of the amplifier. The rear panel also holds the mains cord (2) and the mode switch (1). For maximum safety, it is recommended to stick to the order given below when wiring the PA system.

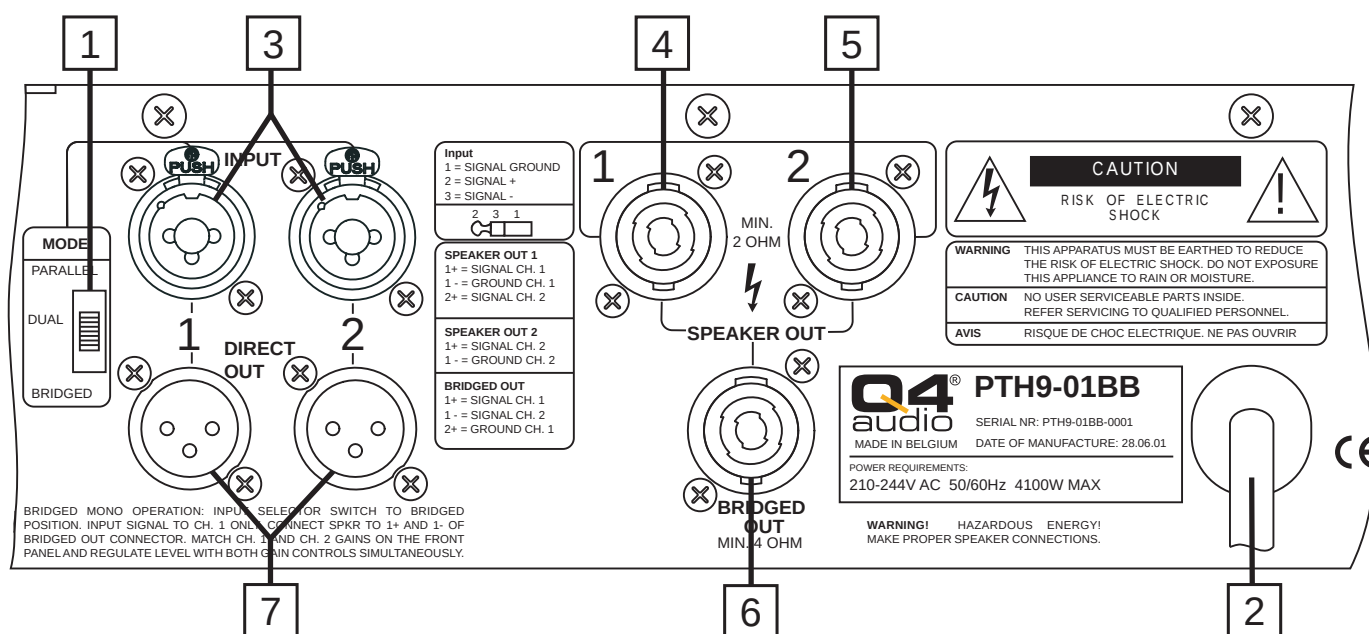
2.3.1 Input connections

The input sockets (3) are mixed XLR/phone jack receptacles, which allow the use of microphone or instrument cables to connect to the amplifier. Whenever possible, use 2-conductor microphone cable for a balanced signal transmission, which gives the best results and the lowest noise. The inputs are wired in standard configuration with pin 1 as signal ground, pin 2 as signal "hot" and pin 3 as signal "cold". You may also refer to the input wiring diagram on the amplifier's back panel. Two 'Direct Out' male XLR sockets (7) below to the input sockets are wired in parallel to the inputs and provide easy linking to other amplifiers.

DUAL mode: connect each channel input to the appropriate output of the preceding audio device.

PARALLEL mode: use **only input 1** of the amplifier to obtain identical signals on both speaker outputs 1 and 2. The output levels can be adjusted individually by means of their corresponding volume controls.

BRIDGE mode: use **only input 1**. Both volume controls must be used **simultaneously** for output level control. Under any circumstance, keep both volume controls at the same value or the amplifier will shut down during operation.

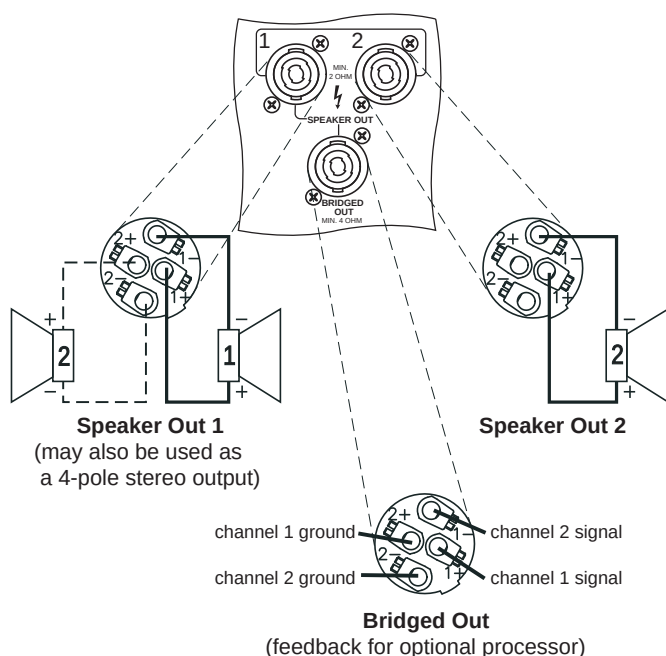


2.3.2 Speaker connections

Warning: All PTH series amplifiers are capable of producing dangerously high voltages at the output terminals! To avoid cable overheating, do not use speaker cables under 1.5 mm² cross-section (AWG 15). The use of thicker cables helps to keep power loss down and damping high, especially if long distances have to be bridged. After insertion, make sure that every speakon connector has been twisted clockwise before locking it with the swivel nut to ensure proper contact. The pin configurations for the three speaker connectors are printed on the amplifier's back panel. The speaker outputs are wired so they can be used in different ways, depending on the setting of the mode switch. Before connecting the speakers, make sure that your speaker cables are properly wired.

DUAL mode: use the SPEAKER OUT 1 and 2 outputs to connect the speaker systems. The BRIDGED OUT also carries both output signals and can be used to feed the output signal to an additional device, e.g. feedback for a speaker system processor. Minimum total speaker impedance per channel is 2 ohms.

Pin configuration for SPEAKON plugs
Dual (stereo)/Parallel (mono) mode:



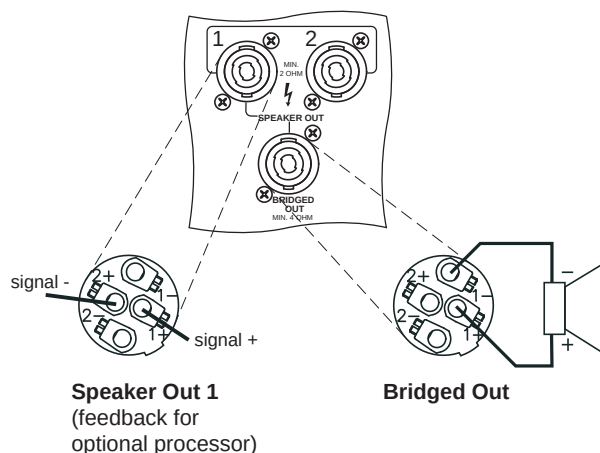
PARALLEL mode: same wiring as DUAL mode, but with identical signals on all outputs. Minimum total speaker impedance per channel is 2 ohms.

BRIDGE mode: BRIDGED OUT speaker connection is done by using standard Speakon cables. Make sure that there is no ground connection for pins 2+ and 2- on your Speakon plug. The OUT 1 socket can be used to feed the output signal to an

additional device, e.g. feedback for a speaker system processor.

Pin configuration for SPEAKON plugs

Bridge mode:



2.3.3 Mains connection

For mains connection, use only three-prong mains connectors with earth contact.

Switching the amplifier to different voltage systems is done from the inside and should only be performed by a qualified technician.

The mains cable conductors have the following color code:

YELLOW/GREEN = earth (PE)

BROWN = live (L)

BLUE = neutral (N)

3. Operation

Each channel is controlled from the front panel by a level control potentiometer and 4 status LED's. The status LED's indicate the following operational states of the amplifier:

READY/PROTECT: this two-coloured LED indicates the state of the output protection relay. It lights up green when the amplifier is working normally, and turns red whenever the output is disconnected internally as a result of malfunction, e.g. DC voltage at the output, output stage defect, or heatsink temperature exceeding 90°C. After turning the amplifier on, this LED will remain red for about 5 seconds until the internal supply voltages have set to their normal values.

SIGNAL: a lit LED indicates an audio signal present at the channel's output. Threshold level is +10 dBV.

NLR: lights up when the internal limiter needs to automatically reduce gain because of a significant deviation between input and output signal shape. This way the NLR limiter prevents occurrence of gross

nonlinearity conditions inside the amplifier caused by overdrive, overload or defect and keeps the signal shape unaltered under any circumstances.

The NLR circuit keeps signal shape distortion under 5% and thus guarantees a clean sound and effective speaker protection.

TCL: indicates signal limiting as a result of heat sink over temperature (above 80°C). This helps to prevent the triggering of the internal thermal shut-off circuit, which would step in at 90°C heat sink temperature as a final safeguarding measure. TCL becomes only active when the regular cooling mechanism fails to work properly, e.g. by a dirty heat sink, or obstructed air-flow. A lit TCL LED should always be taken as a sign to check for sufficient cooling air supply.

4. Grounding

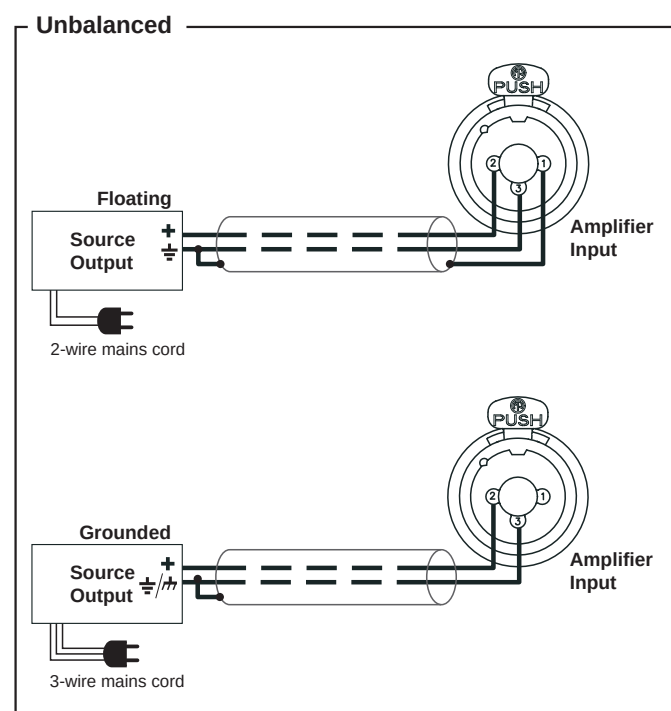
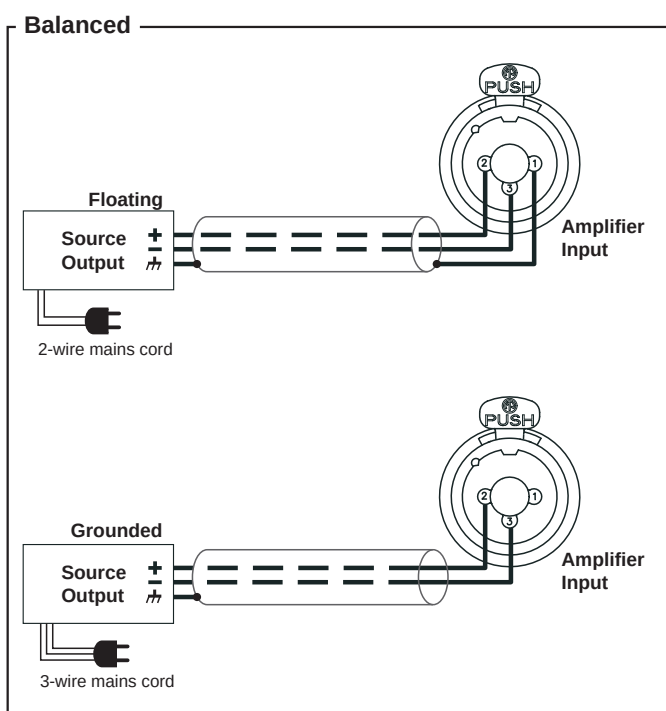
For maximum performance we recommend the use of two conductor shielded cable for making input connections. Because the shield does not carry audio signal, interference between signal current and audio current is minimised in this way. While wiring up your system take following important points into consideration:

1. Never use a ground lift adapter on the mains feed. The isolation system of this product takes into account that the chassis is connected to earth at all times. This product will become unsafe if the chassis is disconnected from earth.
2. Most installations use a mix of balanced and unbalanced connections with a variety of equipment being connected. In case you experience a hum or buzz problem, do not be afraid to experiment.

Pin 1 of the input connectors (and direct out connectors) is

connected to chassis ground. In a perfect world it would be possible to simply connect the sleeves of the signal cables to pin 1 at both ends of the cable. This would in effect make the cable screen an extension of the chassis between the two interconnected pieces of equipment and provide for perfect LF and HF screening of the audio signals.

Problem however is that some equipment use badly organised internal grounding and will generate hum and buzz because of earth currents flowing through the internal signal ground. In such case it is necessary to stop the earth currents from flowing by disconnecting pin 1 from the sleeve. Use the figures below as a guidance to solve problems with hum or buzz.

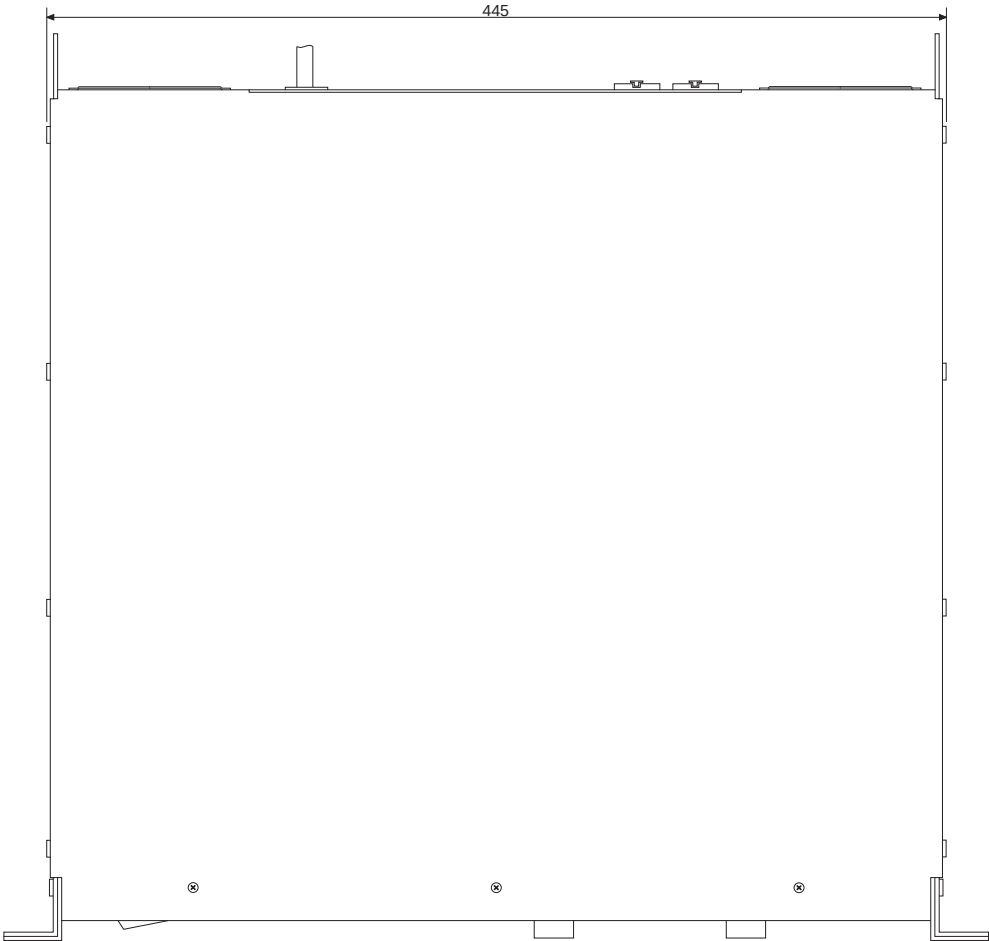
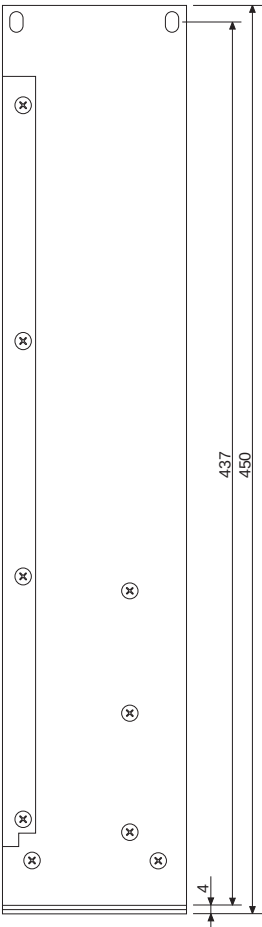
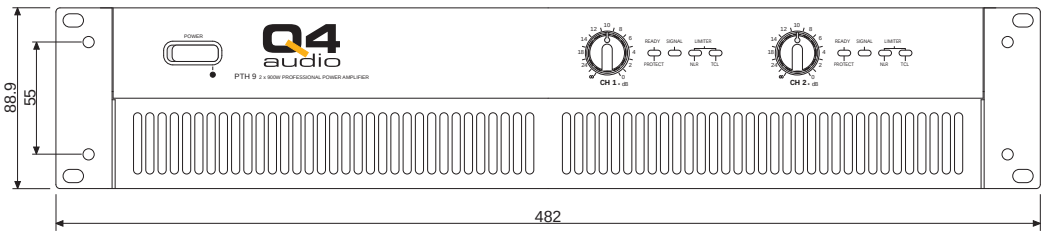
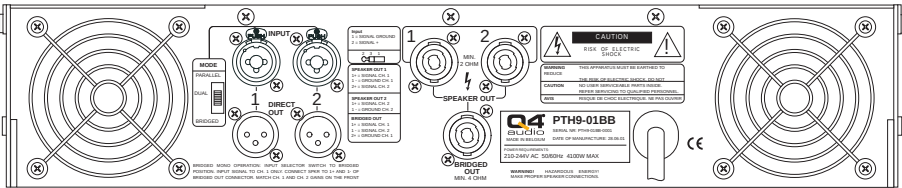


5. Technical specifications

Model	PTH 3	PTH 5	PTH 7	PTH 9
Min. cont. output power per channel into 2 ohms <i>1 KHz sine wave, THD < 1%, both channels driven</i>	400 W	680 W	980 W	1.150 W
Min. output power per channel into 4 ohms <i>1 KHz sine wave, THD < 1%, both channels driven</i>	330 W	540 W	720 W	920 W
Min. output power per channel into 8 ohms <i>1 KHz sine wave, THD < 1%, both channels driven</i>	220 W	330 W	450 W	600 W
Min. output power in bridge mode into 8 ohms	1x600 W	1x1.000 W	1x1.400 W	1x1.800W
Min. output power in bridge mode into 16 ohms	1x380 W	1x600 W	1x900 W	1x1.180W
Frequently range <i>20 Hz - 20 KHz at nom. output power</i>	+ 0 dB / - 0.3 dB			
SMPTE intermodulation distortion <i>60 Hz - 7 KHz 4:1</i>	< 0.1%			
Pulse intermodulation distortion <i>30 KHz bandwidth at nom. output power</i>	< 0.1%			
Slew rate <i>Input low pass filter defeated</i>	> 50V / μ s			
Damping factor <i>1 KHz referred to 8 ohms</i>	> 200 : 1			
Max voltage gain	32 dB			
Noise interference <i>22 Hz - 22 KHz rms unweighted, referred to nom. output power</i>	< -106 dBV	< -108 dBV	< -110 dBV	< - 112 dBV
Crosstalk <i>1 KHz / 8 ohms</i>	> -70 dB			
Input CMRR 100 Hz	> -80 dB			
Output DC voltage	< $\pm$ 5 mV			
Input impedance	10 Kohms unbalanced / 20 Kohms balanced			
Input connectors	1/4" phone jack / XLR compound receptacle, parallel XLR male per input			
Output connectors	1 x 4-pole Speakon per channel / 1 x 4-pole Speakon for bridge output			
Cooling	Forced cooling with 2 vari-speed fans / rear to front airflow			
Mains supply	115 / 230 V AC (-20% / +5%) 50/60Hz			
Dimensions	Width: 482 mm, Height: 88.5 mm, Depth: 450 mm			
Net weight	17.5 Kg	18.3 Kg	20.5 Kg	21.7 Kg
Shipping weight	20 Kg	20.8 Kg	23 Kg	24.2 Kg

Dimensions

Abmessungen



Warranty**Garantie****SUMMARY**

The Q4AUDIO division of Summit Engineering nv Tongersesteenweg 190 3800 Sint-Truiden Belgium, the creators and manufacturers of the Q4AUDIO product line warrants to you, the original purchaser and any subsequent owner of this Q4AUDIO product, for a period of 2 (two) years (warranty period) from the date of purchase by the original purchaser that the product is free of defects in components and factory workmanship. The date of purchase is the date appearing on the first end-user's sales receipt or other proof of original purchase from an authorised Q4AUDIO dealer.

ITEMS EXCLUDED FROM WARRANTY

This Q4AUDIO warranty does not cover product failure caused by misuse, accident or neglect. Nor shall it be applicable to any product on which the serial number has been defaced, altered or removed. This warranty shall be considered void if this product is subjected to repair work or alteration by persons other than authorised by Q4AUDIO in such a manner as to injure, in the sole judgment of Q4AUDIO, the performance, stability, reliability or safety of this product. This warranty does not apply to finish or appearance items. This warranty is in effect only during the warranty period.

OUR COMMITMENT

During the warranty period, Q4AUDIO will remedy any defect (except as excluded) by repair or at its option replacement or refund. In case of refund the defective or malfunctioning product shall be made available to us free and clear of all lies or other encumbrances. The refund will be equal to the original purchase price less a reasonable depreciation of 10% per year from the date of purchase. The refund will not include interests, insurance, closing costs, loss of profit or other financial costs that may be the result of the product's defect.

OBTAINING WARRANTY SERVICE

You must notify us of your need for warranty service, preferably by filling out the service request form in this manual and returning it to us. We will give you notice of the authorised service center to whom you may deliver the product or we will give you an authorisation to return it to the factory. All components must be shipped in a factory pack, shipping prepaid. Repairs and replacement parts provided under the terms of this warranty shall carry only the unexpired portion of this warranty.

DISCLAIMER

Q4AUDIO is not liable for any damage to other products such as speakers, amplifiers or any other equipment that is caused by using this Q4AUDIO product.

PRODUCT CHANGES

We reserve the right to change the design on any product without prior notice and with no obligation to make corresponding changes in products previously manufactured.

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fax: +32 11 69.45.92
www.q4audio.com
email: ebergers@summit-eng.be

Owner information

Name/Company:

Shipping address:

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Country:

Telephone: Fax:

Product information

Model:

Serial number:

Purchased from:

Purchase date:

Problem description

 Be sure to explain the circumstances under which the problem occurred.

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Attempts to solve the problem

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Send this service request form together with the unit to your authorised Q4audio dealer,
or to following address:

Summit Engineering nv Q4audio division Tongersesteenweg 190 3800 Sint-Truiden Belgium Tel: (+32) (0)11 69 42 59 Fax: (+32) (0)11 69 45 92
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